

AMENDMENTS TO THE CLAIMS

1. (Currently amended) An energy management system operable in three modes of operation including a driving mode to drive a ~~vehicle~~-drive shaft of a vehicle having an engine, a retarding mode to retard said ~~vehicle~~-drive shaft of the vehicle and a neutral mode to have no driving or retarding influence on said ~~vehicle~~-drive shaft, said system comprising said drive shaft, an energy accumulator operable to store and release energy through receipt and release of fluid, a pump/motor ~~having a pump drive shaft and being~~ in fluid communication with said energy accumulator, a reservoir of fluid in communication with said pump/motor and a coupler adapted to couple said pump/motor to said ~~vehicle~~ drive shaft, whereby in said retarding mode, ~~of said vehicle system~~, said drive shaft drives said pump/motor to pump fluid to said energy accumulator, and whereby in said driving mode of said system, said energy accumulator releases fluid to drive said pump/motor which drives said ~~vehicle~~-drive shaft, and whereby in said neutral mode of said system, said pump/motor is inoperative to exert any driving or retarding influence on said ~~vehicle~~-drive shaft, ~~the system further including~~ at least one sensor adapted to provide input signals indicative of selected system parameters including vehicle ground speed, ~~and a controller incorporating a microprocessor adapted to regulate the modes of operation of said pump/motor and said accumulator in response to said input signals~~, a gearing facility including a first gear, said first gear being mounted on said drive shaft to drive or be driven by said drive shaft, a second gear meshingly engaged with said first gear, a further shaft displaced from said drive shaft to drive or to be driven by said second gear, said further shaft being operatively associated with said pump/motor to drive or to be driven thereby, and a clutch operable to drivingly connect said pump/motor with said drive shaft to provide for said driving mode and retarding mode, and operable to drivingly disconnect the pump/motor with said drive shaft to provide for said neutral mode.

2. – 59. (Cancelled)

60. (New) The energy management system of claim 1, wherein said gearing facility includes a third gear, said third gear being mounted on said drive shaft to drive or to be driven by said drive shaft, a fourth gear, said fourth gear being mounted on said further shaft to drive or to be driven

thereby and meshingly engaged with said third gear, and wherein said clutch is operable to connect the second gear with said further shaft so that said further shaft is drivingly associated with said drive shaft via said first and second gear, to drivingly connect said fourth gear to said further shaft so that said further shaft is drivingly associated with said drive shaft via said third and fourth gears, while when said clutch is operated to connect neither said second or fourth gears drivingly to said further shaft, said clutch provides said neutral mode.

61 (New) A vehicle having an engine and the energy management system of claim 1, said energy management system further including a load removal facility operable to disconnect an engine of the vehicle from said drive shaft at times when momentum of said vehicle drives said drive shaft.

62. (New) The vehicle of claim 61, wherein said load removal facility includes a disengagable coupling that when disengaged operatively isolates the engine from the drive shaft.

63. (New) The vehicle of claim 62, wherein said disengagable coupling is a clutch.

64. (New) The vehicle of claim 63, further including a gear box through which the engine drives the vehicle, with said load removal facility being located between the gear box and engine.

65. (New) An energy management system operable in three modes of operation including a driving mode to drive a drive shaft of a vehicle, a retarding mode to retard said drive shaft of the vehicle and a neutral mode to have no driving or retarding influence on said drive shaft, said system comprising said drive shaft, an energy accumulator operable to store and release energy through receipt and release of fluid, a pump/motor in fluid communication with said energy accumulator, a reservoir of fluid in communication with said pump/motor, and a coupler adapted to couple said pump/motor to said drive shaft, whereby in said retarding mode of said system, said drive shaft drives said pump/motor to pump fluid to said energy accumulator, and whereby in said driving mode of said system, said energy accumulator releases fluid to drive said pump which drives said drive shaft, and whereby in said neutral mode of said system, said pump is inoperative to exert any

driving or retarding influence on said drive shaft, and wherein said coupler includes a gearing facility operable to provide different gear ratios in respect of drivingly coupling the pump and the drive shaft.

66. (New) The energy management system of claim 65, further including at least one sensor adapted to provide input signals indicative of selected system parameters including vehicle ground speed, a controller incorporating a microprocessor adapted to regulate the modes of operation of said pump/motor and said accumulator in response to said input signals.

67. (New) The energy management system of claim 66, wherein said gearing facility is adapted to provide two different gear ratios, with the gearing facility operable to select one of the gear ratios.

68. (New) The energy management system of claim 67, wherein said system further includes a clutch operable to drivingly connect the pump and the drive shaft and operable to drivingly disconnect the pump and the drive shaft to provide said neutral mode.

69. (New) The energy management system of claim 68, wherein said clutch is operable to drivingly connect the pump and the drive shaft so as to provide said drive mode and retard mode.